

FY 2016 CAPACITY DEVELOPMENT ANNUAL REPORT TO EPA

July 2015 to June 2016

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Drinking Water and Groundwater Bureau

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NEW HAMPSHIRE



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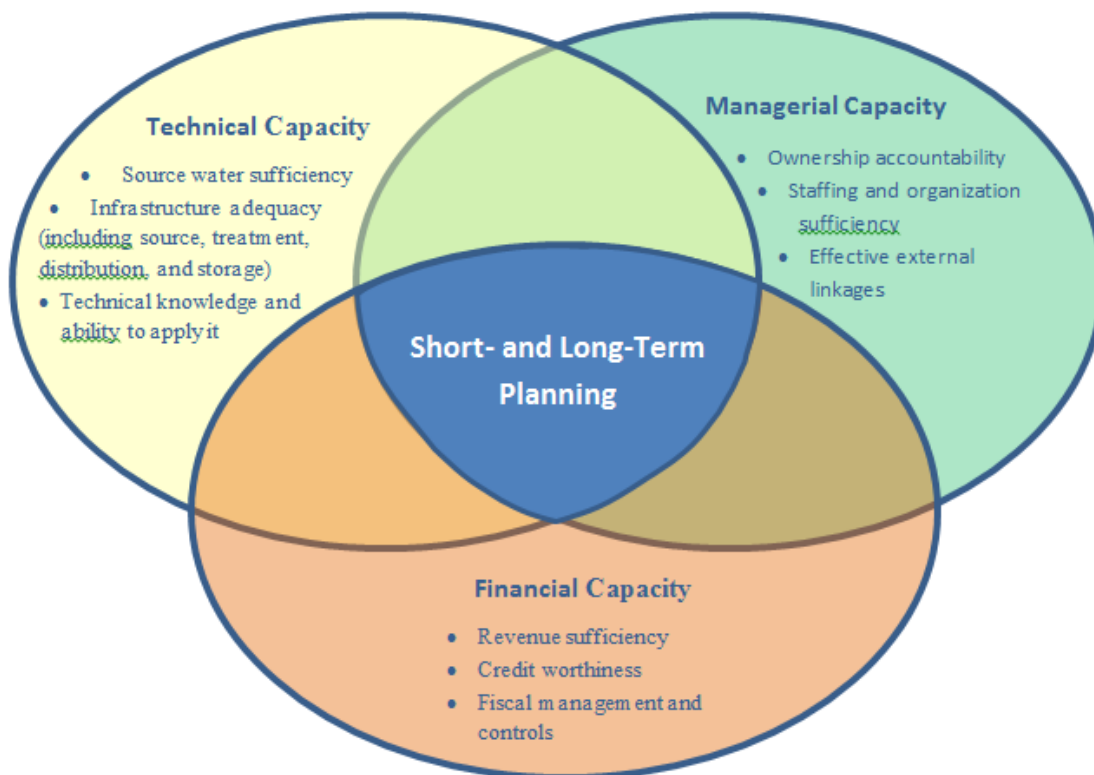
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I. INTRODUCTION

1. BACKGROUND

Under the 1996 Amendments to the Safe Drinking Water Act (SDWA), Section 1420(c), each state must develop, implement, measure and report on their “capacity assurance” efforts to ensure that all new and existing public water systems (PWS) have adequate technical, managerial and financial means to provide clean, safe and reliable drinking water to their customers. States failing to comply with these requirements are subject to withholding up to 20 percent of their Drinking Water State Revolving Loan Fund (DWSRF) allotment.

Figure 1 – Small Water System Challenges



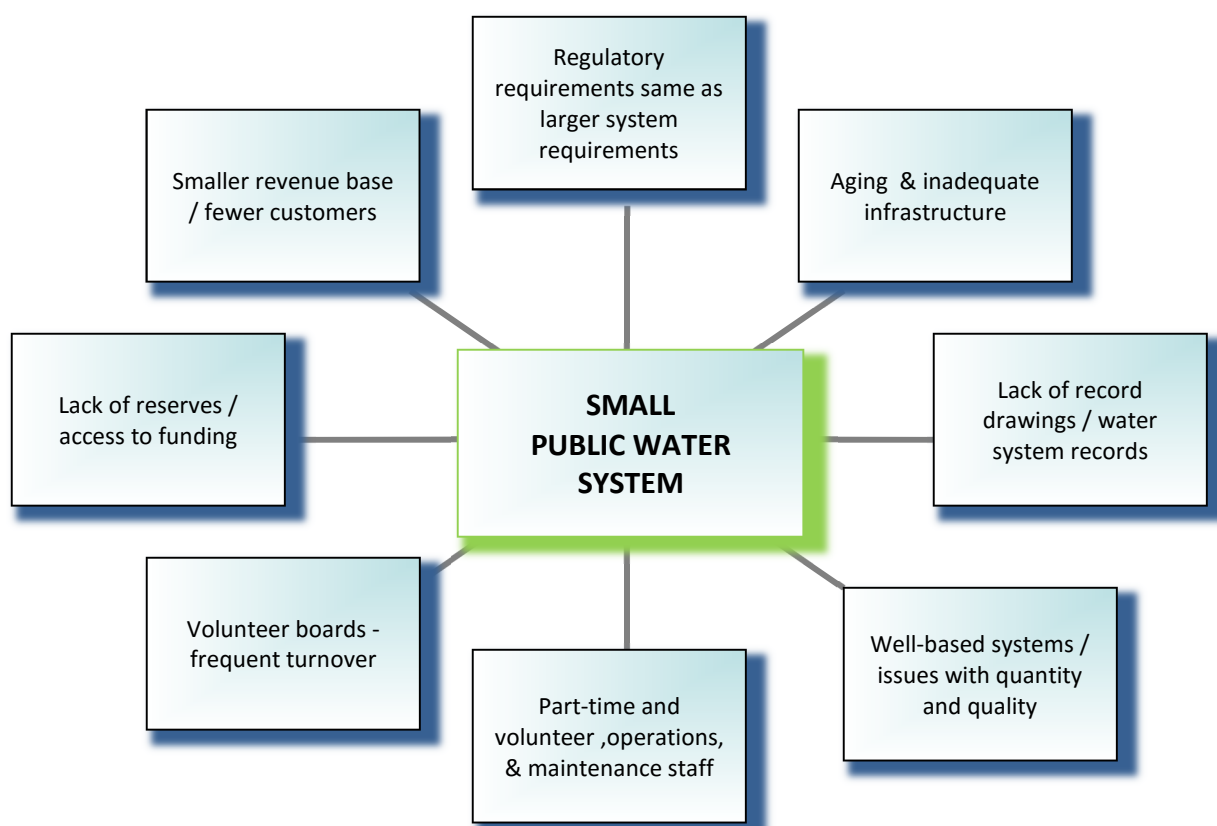
Technical- The physical and operational ability of a water system to meet SDWA requirements, including the adequacy of its source water, physical infrastructure, technical knowledge and capability of operating personnel.

Managerial- The ability of a water system to conduct its affairs in such a manner to achieve and maintain compliance with SDWA requirements, including the system’s institutional and administrative capabilities.

Financial- The water system’s ability to acquire and manage sufficient financial resources to achieve and maintain compliance with SDWA.

This report is structured in accordance with the reporting criteria required by EPA. Section II describes water system compliance issues or capacity development “needs”; Section III describes activities to ensure adequate capacity of **new** public water systems, and Section IV summarizes activities to improve the capacity development of **existing** systems.

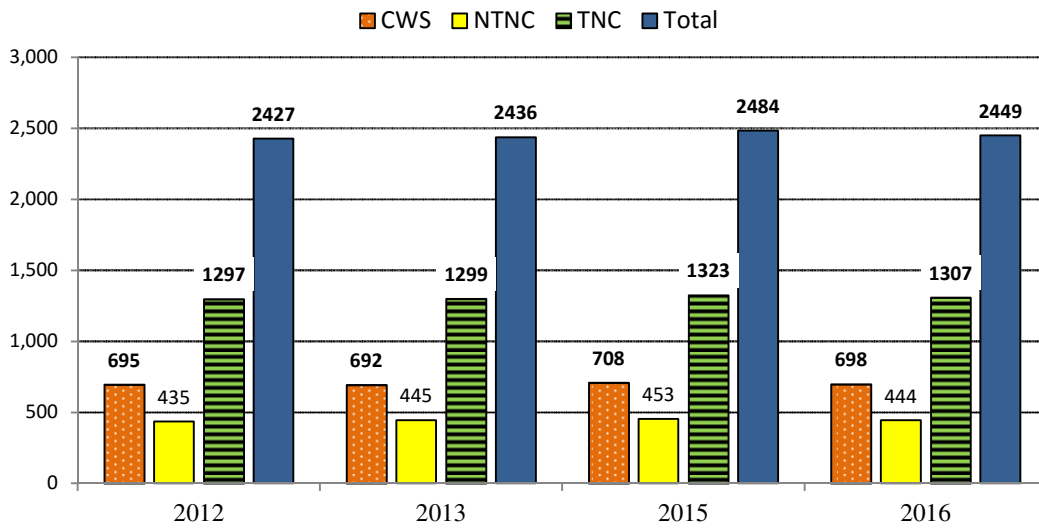
The goal of capacity assurance is to improve the long-term sustainability and rate of compliance of community public water systems (CWS) and non-transient non-community (NTNC) public water systems. New Hampshire’s program is administered through the Department of Environmental Services Drinking Water & Groundwater Bureau (DWGB). New Hampshire focuses our capacity development efforts on the very small water systems (<250 service population), because these systems exhibit a multitude of hardships to manage and maintain water system compliance (Figure 1), and incur the highest number of violations both for health-based parameters and for monitoring and reporting requirements.



2. PROFILE OF NEW HAMPSHIRE PUBLIC WATER SYSTEMS

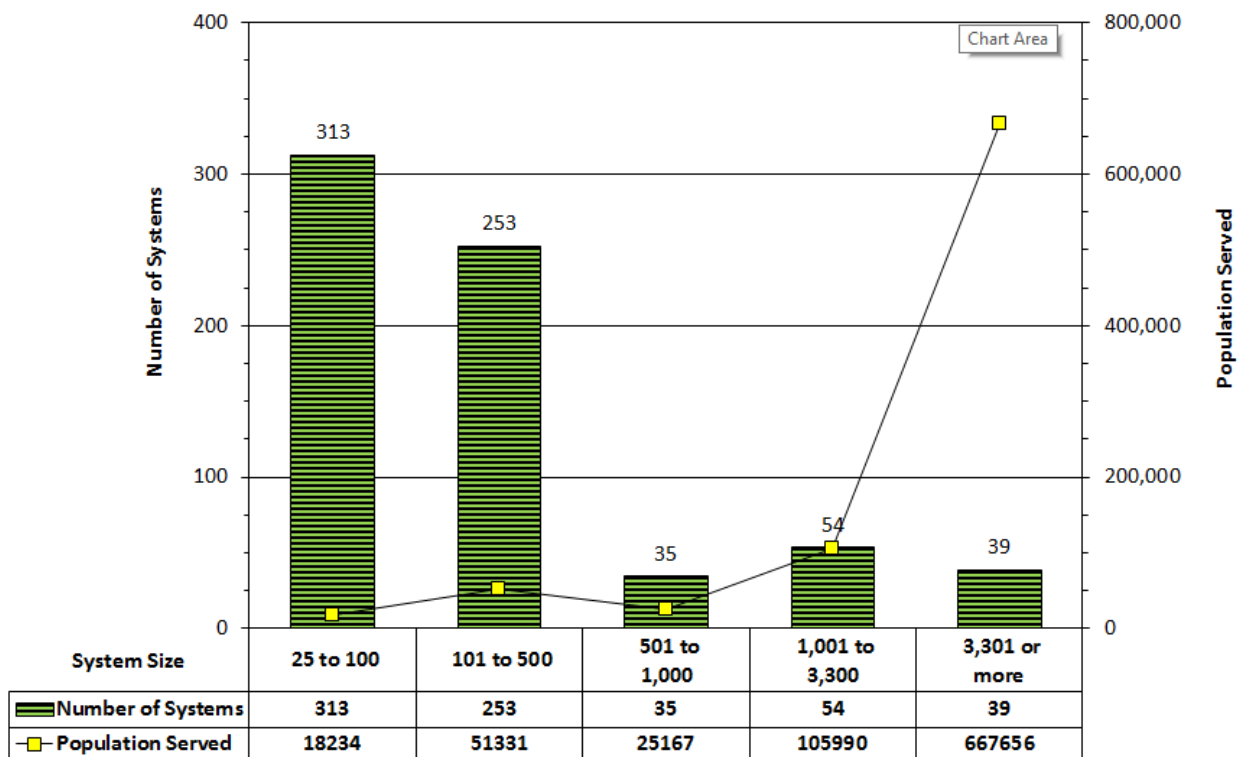
New Hampshire’s approximately 2,500 public water systems consist of about half (47%) non-transient systems, serving residential communities, schools and businesses. The remaining 53% serve transient populations such as hotels, restaurants and campgrounds (Figure 2). It is also important to note that only **54%** of the state’s residential population is served **by public water systems**, with the balance **46%** served by **private wells**.

**Figure 2 - Active Public Water Systems in NH
(by previous calendar year)**



Further breakdown of New Hampshire's public water system inventory shows that **72%** of our residential *community water systems* serve 250 people or less, representing about **6%** of the community water system *populations* served (Figure 3). Adding the NTNC systems, the percentage serving populations less than 250 rises to 91%, further confirming the need to target capacity assistance efforts to this system size bracket, as it has the highest rates of non-compliance.

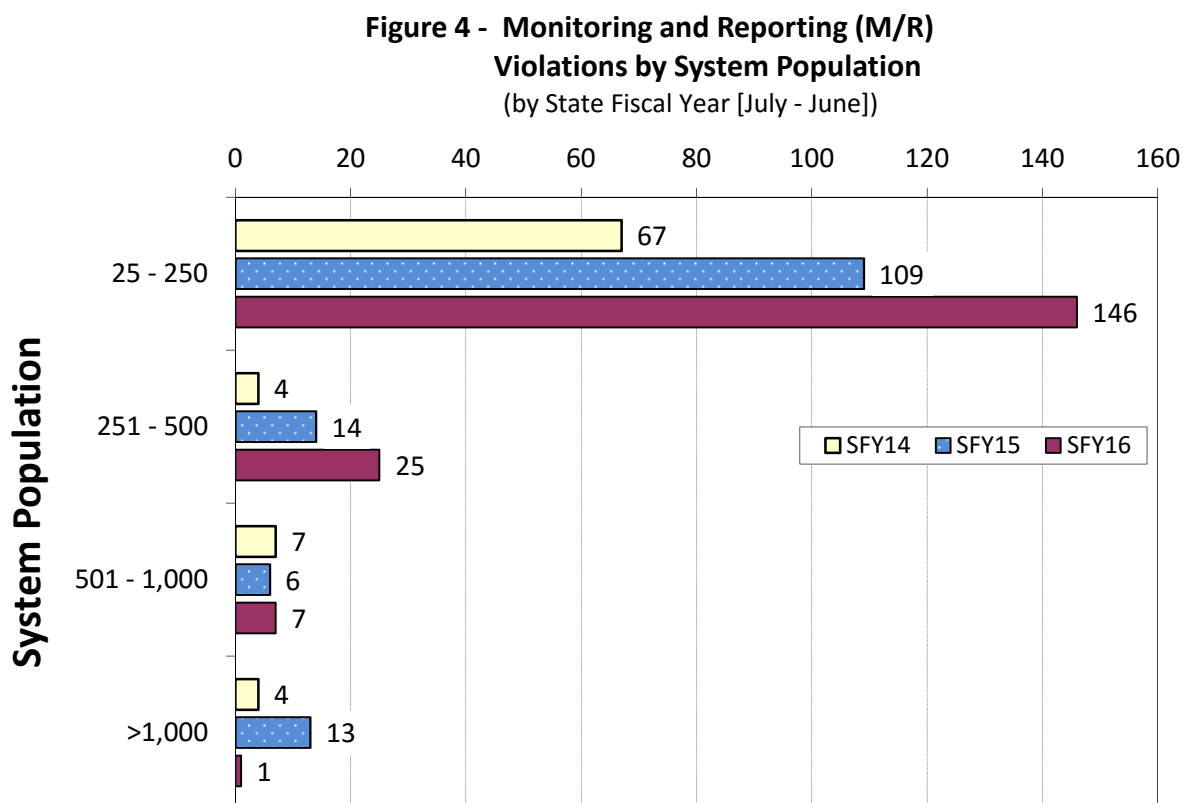
**Figure 3 - Community Water Systems
by Population Served in Calendar Year 2015**



II. STATEWIDE CAPACITY NEEDS IDENTIFIED THIS PERIOD

1. VIOLATIONS FOR MONITORING AND REPORTING

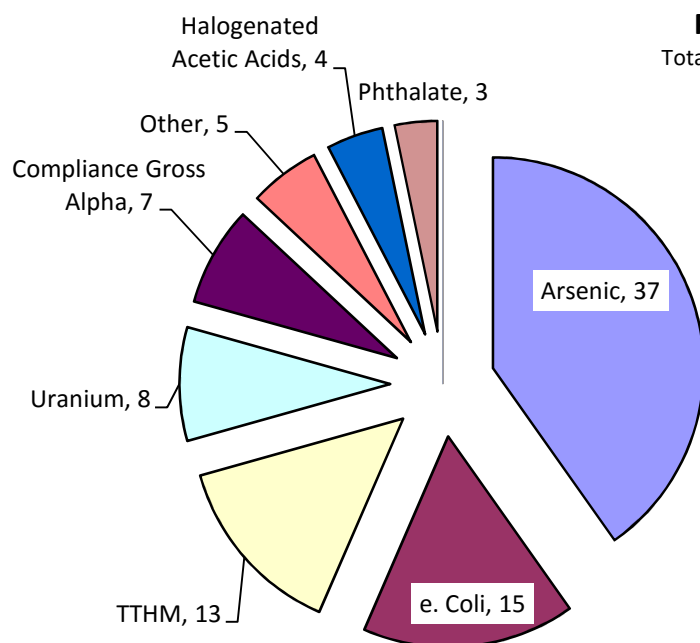
Monitoring and reporting violations include failure to submit samples on time, conduct Revised Total Coliform Rule (RTCR) monitoring and reporting, perform public notice, submit Consumer Confidence Reports, provide Lead Education, and other ‘paper’ violations. As shown in Figure 4, the *number* of violations issued to systems serving up to 250 persons is higher than those issued for all other system sizes – about four times higher – due to the predominance of very small systems in the state. More violations occurred in 2015 and 2016 than in 2014 due to introduction of RTCR violations. Community systems with populations of 25-250 and 251-500 experienced the highest rate of violations per system (29% and 38%, respectively). Outreach and education to these systems is a critical capacity development need due to the staff time required both before and after these violations occur.



2. VIOLATIONS FOR WATER QUALITY

Violations are issued for exceedances of health-based, maximum contaminant levels (MCLs) for *e. coli* bacteria, chemical and radionuclides. A breakdown per contaminant for the past state fiscal year (Figure 5) shows that Arsenic (48%) should continue to be the focus of outreach and assistance.

Figure 5 - MCL Violations for System Populations ≤ 500 in Calendar Year 2015
Total Maximum Contaminant Level (MCL) exceedances = 72



In 2016, The Revised Total Coliform Rule eliminated Total Coliform MCLs, and 301 assessments were conducted in response to bacteria detections.

3. DEFICIENCIES NOTED FROM ONSITE INSPECTIONS AND ASSESSMENTS

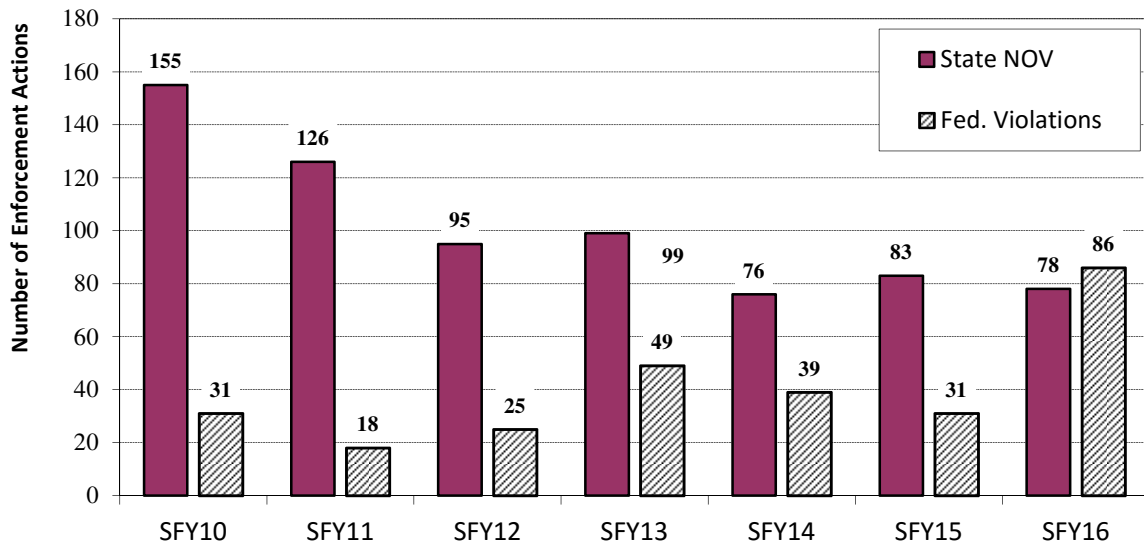
New Hampshire reinforced its sanitary survey outreach and enforcement with implementation of the Groundwater rule in 2009. These efforts have improved system reliability and operations, and have served to better prepare systems for the new RTCR Assessments which New Hampshire adopted in January 2015. The RTCR eliminated bacteria MCLs and resulting violations, replacing MCLs with the requirement to perform system Level 1 (L1) and Level 2 (L2) system self-assessments to identify and rectify the causes of bacterial presence.

Total Coliform bacteria detections in State Fiscal Year (SFY) 2016 resulted in 301 assessments and increased resulting federal violations. Based on the number of inspections, it is apparent that bacteria detections should continue to be another focus of education and outreach.

The number of violations arising from the requirement to perform L1 and L2 assessments is reflected in SFY 2016 data on Figure 6, which shows a decreasing trend in the issuance of Notices of Violation (NOV) starting in with implementation of the groundwater rule, and a generally steady number Letters of Deficiency (LOD) cited for sanitary survey deficiencies, with a marked rise in 2016 due to inclusion of violations resulting from bacteria-triggered assessments. Deficiencies are cited for system infrastructure, operations, assessments and recordkeeping.

The state-only NOV is issued as a “reminder” if the deficiency is not corrected or does not have a state-approved Corrective Action Plan (CAP) **within 30 days** of the survey inspection. These deficiencies become federal violations, prompting issuance of LODs and requirements for Public Notification if the deficiencies are still outstanding or do not have an approved CAP **within 120 days** of the survey citations. Technical assistance is provided for possible corrective options onsite at the time of the survey, and by follow-up email and/or phone correspondence.

Figure 6 - Sanitary Survey Enforcement
(by State Fiscal Year [July 1 to June 30])



4. IDENTIFICATION AND PRIORITIZATION OF SYSTEMS IN NEED OF ASSISTANCE

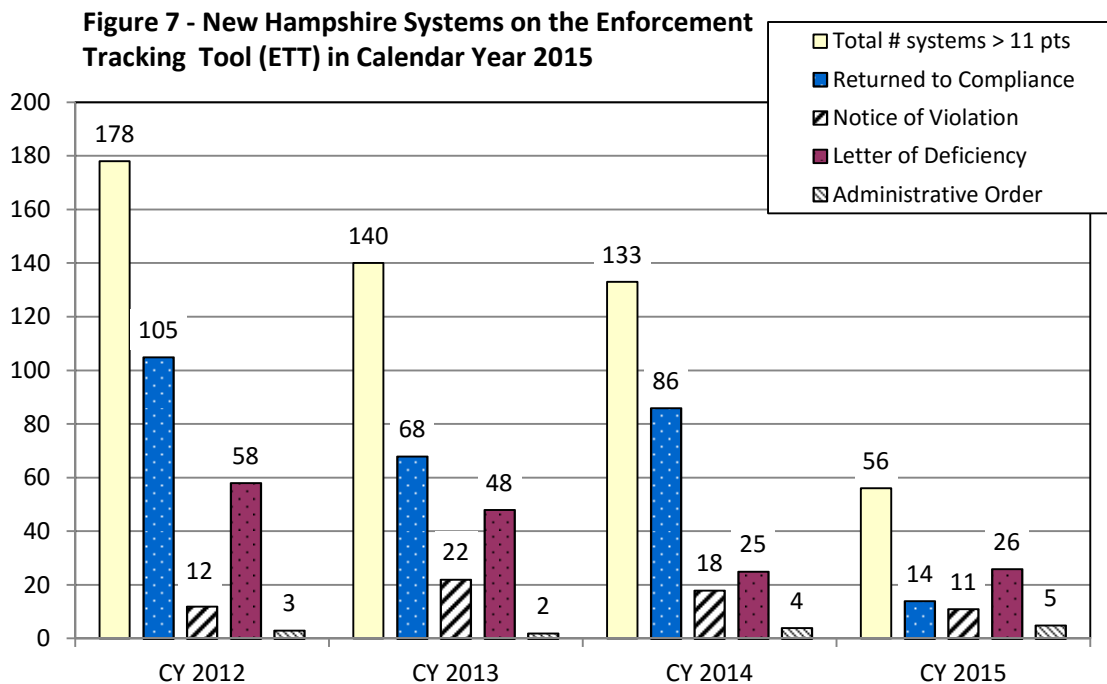
Systems in need of targeted, one-on-one technical assistance through the Capacity Development Program are identified through regular interactions including sanitary surveys, referrals from contract operators, customer complaints, grant and loan application lists, and repeat violations / enforcement lists. A rolling capacity development “priority list” is maintained wherein each system is assigned a lead “Technical Assistance” contact from the bureau, to identify root causes and solutions with the system representatives and consultants. In FY16 staff provided *extended one-on-one* capacity development assistance (tracked as “CM” site visits and “CDV” deficiency code) to **10 non-compliant water systems**, two of which had deficiencies resolved in 2016.

Technical Assistance and parallel enforcement interactions with systems on the priority list (and others) are documented in the water system file. Capacity development efforts often require several months to several years to address the core causes of non-compliance. Assistance efforts typically include site visits and meetings, email and phone interactions, coordination with national and state TA partners, and funding assistance via grants and/or the Drinking Water State Revolving Loan Fund (DWSRF).

5. ENFORCEMENT TARGETING TOOL (ETT) LIST

The federal “Enforcement Tracking Tool” (ETT) is administered by EPA and provides a quarterly scoring of all active public water systems with open SDWA violations with ETT scores of 11 points and higher. Review of the past 4 years of ETT tracking shows reductions in New Hampshire’s public water systems that are incurring ETT scores of 11 points or higher, averaging 44 in 2012 to 14 in 2015. New Hampshire’s enforcement section escalates these systems through each higher enforcement step until compliance is achieved. The number of systems at the different enforcement steps for calendar years 2012 to 2015 is shown as Figure

7. New Hampshire's policy is to provide targeted technical assistance to systems up to the time when the system is referred to Administrative Order, after which interactions are generally limited to enforcement communications only.



III. CAPACITY ASSURANCE FOR NEW SYSTEMS

From their inception, new public water systems must be designed to support adequate technical, financial and managerial resources for their long-term sustainability and reliability. The capacity assurance program for new, non-transient water systems includes a detailed review of system water sources and infrastructure design in accordance with state regulations. Applicable standards are established in the following Administrative Rules:

- Env-Dw 301 Small Production Wells for Small Community Water Systems.
- Env-Dw 405 Design Standards for Small Community Water Systems.
- Env-Dw 406 Design Standards for Non-community Water Systems.
- Env-Dw 601-603 Capacity Assurance for Proposed and Existing Public Water Systems.

1. CHANGES IN STATE REGULATIONS FOR CAPACITY ASSURANCE

Capacity Assurance state regulations for proposed and existing systems were readopted in fiscal year 2016. The main changes were:

- Inclusion of asset management under technical capacity requirements.
- Clarification of managerial capacity to include water use restrictions in community system covenants.
- Clarification of financial capacity to include quarterly billing based on meter readings for new systems (per water conservation rules).

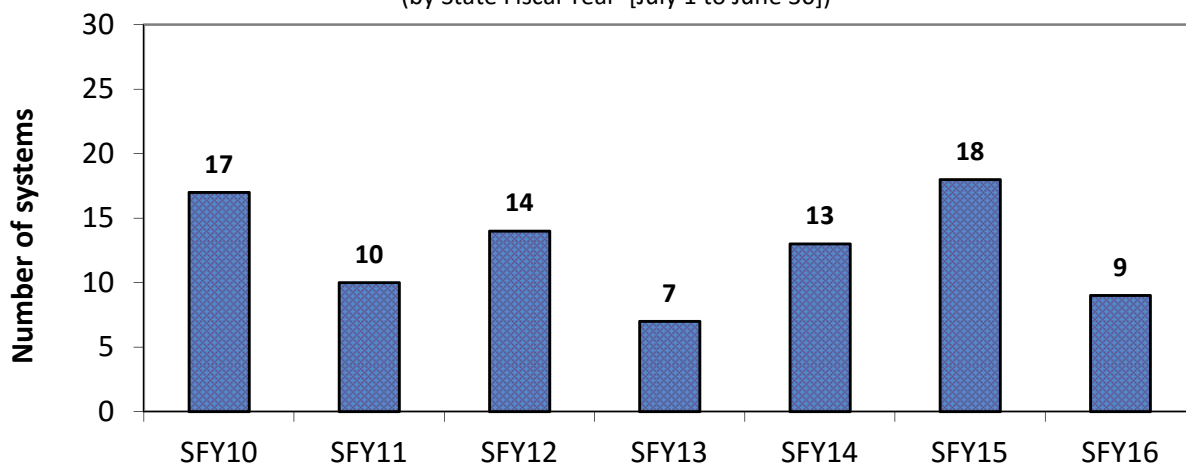
2. MODIFICATIONS TO THE STATE'S CONTROL POINTS FOR CAPACITY ASSURANCE

New Hampshire's main control point for capacity assurance is the water system **Business Plan**. As established by Env-Dw 602 Capacity Assurance for Proposed Public Water Systems, the business plan is a tool for the system to document its asset inventory, management, and financial assets, including a proposed water rate. There were no modifications to this plan in this reporting period.

3. NEW PWS APPROVALS

New non-transient system approvals range from 7 to 18 for the past few years (Figure 8). In addition to review and approval based on the required source water, engineering design and capacity development requirements listed above, DWGB staff provide one-on-one outreach to very small *transient* new system owners as these are not required to hire a certified water operator. None of New Hampshire's new non-transient public water systems from the past three years have been listed on the ETT report with scores of 11 points or higher.

Figure 8 - New Non-Transient Public Water Systems Approved
(by State Fiscal Year [July 1 to June 30])



IV. CAPACITY ASSURANCE ACTIVITIES FOR EXISTING PWS

This section describes the different assistance programs administered by the DWGB to improve the managerial, financial and technical capacity of **existing** PWS. Activities include general and targeted outreach, grants and loans, and one-on-one assistance.

1. SOURCE WATER PROTECTION & EMERGENCY PREPAREDNESS ASSISTANCE

DWGB programs include regular outreach activities for source water protection and emergency preparedness assistance to community public water systems, especially municipalities and districts. Highlights for the past fiscal year included:

- Provided presentations on the New Hampshire Public Works Mutual Aid program.
- Provided "No Trespassing" signs to improve security at drinking water facilities.
- Conducted two workshops to train planners in source water protection.

- Trained 16 water supply and municipal personnel to conduct inspection programs to ensure implementation of groundwater protection best management practices at facilities that are considered potential contamination sources.

2. GRANTS, LOANS AND ASSET MANAGEMENT

DWGB administers various funding programs to provide financial assistance and incentives for PWS infrastructure improvements and sustainability. Highlights for this reporting period include:

- Award of **2 Record Drawing grants** match funds totaling \$2,200 to assist very small community water systems in developing or updating their record drawings. This grant program was developed in FY2009 and offers 50 percent match of eligible costs up to \$1,500 per water system. The grant is available year round.
- The **Drinking Water State Revolving Loan Fund (DWSRF)** awarded \$11,669,899 million for infrastructure project loans in 2015, of which three projects for 509,484 are under contract for systems serving a population of up to 500 (Table 1).
- Awarded **3 Land Acquisition grants** totaling \$1,895,033 to conserve 2,030 acres of water supply lands. The source of the grant money was a Federal Highway Administration mitigation fund associated with the widening of Interstate 93 in southern New Hampshire.
- Awarded **11 Local Source Water Protection grants** for source security and other source protection projects.
- Awarded **7 Asset Management grants** totaling \$97,000 to assist communities with the development and/or the implementation of an asset management program. Since 2013 a total sum of approximately \$610,000 in grants were awarded to 40 communities (Table 2).
- Attendance at Asset Management awareness workshops increased 60%, for a total of 80 participants from the first workshop in 2014.

Table 1 –DWSRF 2015 loan contracts to systems serving <500 people

PWD ID	PWS Name	Town	Project Description	Initial Funding Request	Pop.	Projected Forgiveness
0342010	Beebe River Association	Campton	Water system improvements	\$50,000	63	100%
2312030	White Lake Estates	Tamworth	Water main replacement	\$292,750	250	10%
2542040	Braemar Woods Condo Association	Windham	Interconnection	\$210,000	60	20%

Table 2 –Asset Management Grant Awards 2013 – 2016

SYSTEMS	TOWN NAME	GRANT AMOUNT
Town of Colebrook	COLEBROOK	\$12,500
Conway Village Fire District	CONWAY	\$15,000
North Conway Water Precinct	CONWAY	\$15,000
Crotched Mt. Rehab Center	GREENFIELD	\$8,000
Plymouth Village Water & Sewer	PLYMOUTH	\$15,000
Seabrook Water System	SEABROOK	\$15,000
Lower Bartlett Water Precinct	BARTLETT	\$15,000

Table 2 –Asset Management Grant Awards 2013 – 2016 (continued)

Jaffrey Water Dept.	JAFFREY	\$15,000
Pennichuck Water Works	NASHUA	\$15,000
Rye Water District	RYE	\$15,000
Wolfeboro Water & Sewer	WOLFEBORO	\$15,000
Town of Meredith	MEREDITH	\$15,000
Ashland Water & Sewer	ASHLAND	\$15,000
Town of Belmont	BELMONT	\$15,000
Town of Exeter	EXETER	\$15,000
City of Franklin	FRANKLIN	\$15,000
Groveton Water System	NORTHUMBERLAND	\$15,000
Merrimack Village District	MERRIMACK	\$15,000
City of Dover	DOVER	\$15,000
Peterborough Water Works	PETERBOROUGH	\$15,000
City of Portsmouth	PORTSMOUTH	\$15,000
Wilton Water Works	WILTON	\$15,000
Rollinsford Water & Sewer	ROLLINSFORD	\$13,250
Epping Water & Sewer	EPPING	\$15,000
City of Keene	KEENE	\$15,000
Village District of Eidelweiss	MADISON	\$15,000
Pennichuck Water Works	NASHUA	\$15,000
North Conway Water Precinct	CONWAY	\$12,675
Town of Hanover	HONOVER	\$9,135
Manchester Water Works	MANCHESTER	\$15,000
Town of Derry	DERRY	\$15,000
Town of Bristol	BRISTOL	\$15,000
UNH/Durham Water System	DURHAM	\$15,000
Woodsville Water and Light	WOODSVILLE	\$15,000
Newmarket Water Works	NEWMARKET	\$15,000
Hancock Water Works	HANCOCK	\$15,000
Carroll Water Works	CARROLL	\$15,000
Town of Lincoln	LINCOLN	\$15,000
Town of Salem	SALEM	\$15,000
Plymouth Village Water and Sewer	PLYMOUTH	\$15,000
Berlin Water Works	BERLIN	\$15,000
Town of Wolfeboro	WOLFEBORO	\$15,000
Total Amount Awarded:		\$610,560

3. OPERATOR CERTIFICATION TRAINING AND OUTREACH

The New Hampshire Operator Certification program supports numerous outreach and training activities for water system operators, owners and managers. In the past fiscal year, activities included:

- Contracting with the New Hampshire Water Works Association (NHWWA) for two Small Public Water System Operator Grade IA courses (Fall and Spring), two Basic Math courses, and two Operator Exam Review sessions.
- Contracting with the New England Water Works Association (NEWWA) (an approved IACET training provider) for 20 instructor-led training sessions in New Hampshire specifically targeted for New Hampshire water works operators.

- Coordination with NHWWA to provide six Operator Roundtables throughout the state. These are operator-driven roundtable discussions, which allow industry professionals to relay challenges confronting them and their professions. These forums also allow operators to ask questions of state officials and for the state to discuss anticipated and new regulations.
- Participation on the New England Water Works Operator Certification Committee. This is a regional committee comprised of New England state operator certification officers, EPA representatives and professional water works operators. The committee promotes water works operator certification and initiatives to grow and strengthen the profession.
- Participation in other statewide industry trade shows and training seminars throughout the year with the New Hampshire Water Well Association, New England Water Well Association, Granite State Rural Water Association and other training partners.

Table 4 –Operator Certification Activities

	SFY12	SFY13	SFY14	SFY15
Active Certifications	1006	1055	1011	969
Exams Administered	140	146	204	151

4. SEASONAL WATER SYSTEMS OPERATIONS AND MAINTENANCE TRAINING

Since 2009, DWGB coordinates annual training workshops for campgrounds and other seasonal system owners and operators, with state TA partner, Granite State Rural Water Association (GSRWA). In 2016, New Hampshire retained a part-time inspector hired in 2015 to continue performing targeted outreach to Seasonal Systems regarding changes to monthly monitoring and bacteria assessments, and certification of startup procedures under RTCR.

Training sessions for the past fiscal year were held in Bristol (five attendees), Ossipee (13 attendees), Exeter (six attendees) and Whitefield (six attendees). Training topics included:

- Typical well construction
- New Hampshire geology and naturally occurring drinking water contaminants
- RTCR change to monthly sampling (2015)
- Continued start-up and shut-down procedures and certification (starting 2015)
- Water system operations and maintenance
- Bacteria causes and cures
- Wastewater (dump station) backflow prevention requirements
- State inspections – what to expect

5. LEAK DETECTION SURVEYS

Leak detection and repair play a fundamental role in reducing water loss and energy costs related to the treatment and delivery of drinking water. In FY2016, the professional leak detection firm hired through Drinking Water State Revolving Fund (DWSRF) set-asides in FY2015 completed surveys for 26 community water systems, spanning 737 miles of pipe. Forty four leaks were discovered, totaling approximately 602 gallons per minute. This equates to

roughly 316 million gallons per year, equivalent to 8,668 people using 100 gallons of water per day for a year.

In FY2016, NHDES issued a request for proposal to complete leak detection surveys at 38 community water systems, spanning approximately 976 miles of pipe. A leak detection firm was hired and the surveys are in the process of being completed.

6. WATER CONSERVATION OUTREACH

Promoting water conservation through outreach activities helps communicate the importance of reducing water loss and waste as water and energy resources become increasingly limited. In FY2016, NHDES staff who are supported by DWSRF set-asides gave presentations or provided outreach at four events to promote water efficiency and support the sustainable use of water. Audiences included municipal leaders, certified operators, elementary school students, state employees, and the general public



In FY2016, NHDES promoted the WaterSense Shower Better campaign and distributed 38 high-efficiency showerheads, saving roughly 68,000 gallons of water per year. Sixty-one high efficiency sink aerators were also distributed.

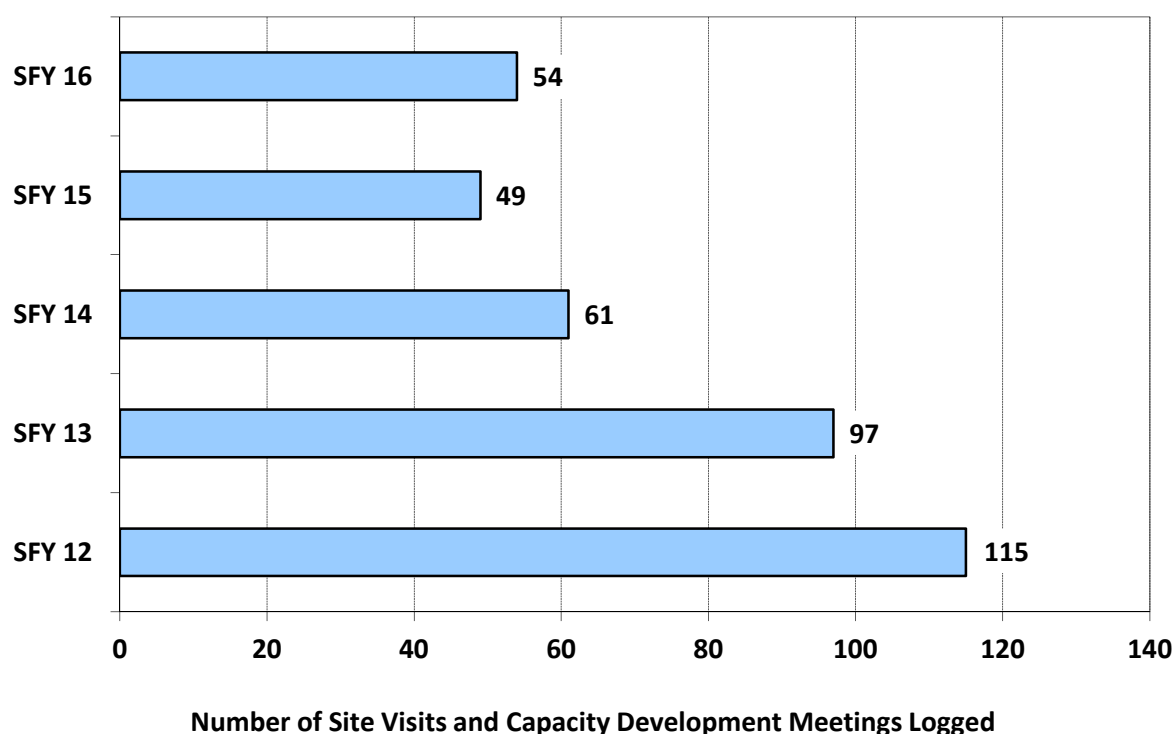
In FY2016, NHDES accepted a WaterSense Excellence Award from the EPA for its work developing the *We're for Water* campaign, promoting WaterSense-certified products and recruiting WaterSense Partners.

7. ONE-ON-ONE TECHNICAL ASSISTANCE

DWGB technical staff provides ongoing technical assistance (TA) to small water systems to assist with source capacity issues, bacteria troubleshooting, and financial and managerial planning. TA site visits and meetings attended by DWGB staff for SFY12 to SFY16 are shown in Figure 9. This year the number of direct TA visits was reduced due to staff turnover and competing demands for staff time. These site visits are *in addition* to standard sanitary surveys, permitting inspections and special investigations performed by DWGB technical staff.

This past fiscal year included 18 site visits with new transient system owners to review a customized binder (with sampling schedule and forms, instructions for using the PWS online portal "OneStop," and guidance on proper sampling procedures) and discuss their responsibilities as a PWS.

Figure 9 - Technical Assistance Visits & Meetings by DWGB Staff



V. STATEWIDE REVIEW OF IMPLEMENTATION PROGRESS

Review of the capacity program implementation progress consists of biweekly meetings by the lead TA contacts, quarterly measures tracking through the statewide Measures Tracking and Reporting System (MTRS), annual reports to EPA, and a triennial report to the Governor.

VI. IMPROVEMENTS TO CAPACITY DEVELOPMENT STRATEGY

For FY17, New Hampshire will continue to build and enhance its capacity development strategies for existing systems, including:

- Continued and new matching grants for small systems serving <5,000 people for development of Record Drawings and performing Tank Inspections.
- Continued requirement for water system Business Plans for asset management planning for systems serving <500 population, that have also received a grant or loan from the State Revolving Loan Fund.
- Continued one-on-one outreach and assistance to non-compliant systems and those lacking adequate capacity.
- Continued collaboration with local and national TA providers including Granite State Rural Water Association, RCAP Solutions, Environmental Finance Center Network, New England Water Works, NH Water Works Association, and the NE Interstate Water Pollution Control Commission (NEIWPCC).
- Collaboration with new National Centers for Innovation in Small Drinking Water Systems “DeRisk” (U. Colorado) and “WINSSS” (U. Mass) on technical and managerial initiatives.